SECTION 7 ONSITE WASTEWATER/SEPTIC

7.1. Current Programs and Capacity

The Virginia Department of Health (VDH) oversees the Onsite Wastewater Program in Virginia. The program encompasses all onsite domestic wastewater systems regardless of size, from single family homes systems to community systems. Onsite sewage systems, by definition, do not directly discharge to surface waters. (Note that industrial discharges to onsite sewage systems are not regulated by the state of Virginia, but by EPA.) In general, the application of domestic wastewater below the soil surface is regulated by VDH and the application of wastewater above the soil surface (spray irrigation, overland flow, etc.) is regulated by DEQ. There are two exceptions: spray irrigation systems for domestic wastewater and subsurface supplemental irrigation systems. Through a cooperative agency agreement, VDH permits spray irrigation sites for domestic wastewater with an average daily flow less than 1000 gallons per day (gpd). Subsurface supplemental irrigation systems are permitted by DEQ under the Water Reclamation and Reuse Regulation (9 VAC 25-740).

Onsite systems in Virginia are generally divided into two groups: conventional and alternative systems. Conventional onsite sewage systems are defined as treatment works consisting of one or more septic tanks with gravity, pumped, or siphoned conveyance to a gravity distributed subsurface drainfield. All other onsite systems are termed ‘alternative’. Alternative systems fall in to three main categories:

- **Septic tank effluent systems that utilize pressure dosing (drip dispersal or low pressure distribution) to a subsurface drainfield.** These designs overcome area limitations by providing a reduced drainfield footprint for pressure dosing. Improved effluent distribution throughout the drainfield and periodic dosing improve treatment and dispersal potential.
- **Secondary effluent (30 mg/l BOD (5 day biochemical oxygen demand) and 30 mg/l TSS (total suspended solids average) systems that discharge to gravity, enhanced flow, or pressure dosed drainfields.** Use of secondary effluent provides an additional reduction for the drainfield area, but more importantly, it reduces depth to restrictions.
- **Better than secondary effluent systems that discharge to gravity, enhanced flow, or pressure dosed systems.** These systems may provide an effluent quality that is better than secondary for BOD_5 and TSS and/or may address nutrients, pathogens, or other parameters of concern. Depending on the effluent quality, an additional reduction in drainfield footprint area may be allowed and other reductions may be allowed depending on the site limitation.

Conventional systems that serve single family homes dominate the Virginia inventory of onsite sewage systems. Virginia has approximately 1,015,000 onsite sewage systems statewide. About 60,000 of the systems statewide are alternative systems and the rest are conventional.

Community systems make up less than 1% of the total and include both conventional and alternative system designs. Approximately 536,200 of the onsite sewage systems are located in the Chesapeake Bay Watershed.

There are two additional programs within VDH that support the onsite sewage program in its charge of protecting public health and the environment: the Division of Shellfish Sanitation and the Marina Program. The shellfish program conducts shoreline surveys for failing onsite systems and the Marina Program encourages the proper pumping of sewage from boats, both of which aid in improving water quality and protecting public health.

Onsite systems in Virginia are estimated by the Chesapeake Bay Model to contribute about 4% of the nitrogen (N) load, or 2.9 million pounds per year. No phosphorus is considered to be added by onsite systems due to the ability of soil to retain phosphorus. Conventional systems are assumed to load N at a rate of 8.92 lbs N/person/year at the edge of the drainfield. That poundage has an assumed attenuation rate of 60% to the edge of the stream. That value is further reduced based on the location of the drainfield to the Chesapeake Bay (the delivery factor). Currently all drainfields in Virginia are considered to be conventional for the purposes of the model.

Laws

The laws governing onsite systems in Virginia can be found in Title 32.1 of the Code of Virginia, Chapter 6. The Board of Health is the responsible entity.

Section § 32.1-164 B. states "*The regulations of the Board shall govern the collection, conveyance, transportation, treatment and disposal of sewage by onsite sewage systems and alternative discharging sewage systems and the maintenance, inspection, and reuse of alternative onsite sewage systems. Such regulations shall be designed to protect the public health and promote the public welfare…"*

In addition to the expected requirements for setbacks, design, installation, and operation, there have been several recent additions to § 32.1-164 which will aid VDH in addressing nutrients in the Bay watershed from onsite systems.

- **B.15**. *"Performance requirements for nitrogen discharged from alternative onsite sewage systems that protect public health and ground and surface water quality."*
- **H.** *"The Board shall establish a program for the operation and maintenance of alternative onsite systems."*
- **J.** *"The Board shall establish a uniform schedule of civil penalties for violations of regulations promulgated pursuant to subsection B that are not remedied within 30 days after service of notice from the Department."*

These Code sections provide VDH with the ability to set and enforce N standards for alternative onsite systems and to require operation and maintenance of alternative systems. Similar authorities are not provided for conventional onsite systems.

The civil penalties collected pursuant to this chapter shall be credited to the Environmental Health Education and Training Fund established pursuant to § 32.1-248.3.

§ 32.1-248.3. Environmental Health Education and Training Fund.

There is hereby created the Environmental Health Education and Training Fund whose purpose is to receive moneys generated by the civil penalties collected by the Department pursuant to § 32.1-164 and appropriated by the Commonwealth for the purpose of supporting, training, educating, and recognizing public- and private-sector individuals in all areas of Environmental Health, including Authorized Onsite Soil Evaluators and Department employees. Civil penalties collected by the Department shall be deposited by the Comptroller to this fund to be appropriated for the purposes of this section to the Department by the General Assembly as it deems necessary. The fund may also be used, in the discretion of the Board, for research to improve public health and for protection of the environment.

Legislation approved in 2008 (§ 32.1-163.6) requires VDH to accept designs for onsite treatment works from professional engineers that do not necessarily comply with the regulations that were existing at that time (Sewage Handling and Disposal Regulations). These designs are required to meet certain standards as delineated below.

§ 32.1-163.6. Professional engineering of onsite treatment works.

A. Notwithstanding other provisions of this chapter, for purposes of permit approval, the Board, Commissioner, and Department of Health shall accept treatment works designs from individuals licensed as professional engineers pursuant to Chapter 4 (§ 54.1-400 et seq.) of Title 54.1. The designs shall (i) be compliant with standard engineering practice and performance requirements established by the Board and those horizontal setback requirements necessary to protect the public health and the environment, (ii) reflect that degree of skill and care ordinarily exercised by licensed members of the engineering profession practicing at the time of performance, (iii) be appropriate for the particular soil characteristics of the site, and (iv) ensure that the treatment works will meet or exceed the discharge, effluent, and surface and ground water quality standards for systems otherwise permitted pursuant to the regulations implementing this chapter.

This Code language sets aside most of the prescriptive requirements of the regulations. Legislation approved in 2009 required the Board of Health to promulgate emergency regulations for alternative systems to establish performance standards and operation and maintenance requirements.

Regulations

There are two main regulations that apply to onsite wastewater systems. The first is the Sewage Handling and Disposal Regulations (12 VAC 5-610, SHDR). The current version of these regulations was adopted in 2000. They address permit procedural issues, soil evaluation, site conditions, loading rates for septic tank effluent (gravity and pressure dosed), depth to restrictions, and horizontal setbacks. They also recognize reductions to restrictions with secondary treated effluent. The Emergency Regulations for Alternative Onsite Systems (12 VAC 5-613) became effective April 7, 2010 and will expire April 6, 2011. These regulations address loading rates for higher quality effluents- Treatment Level (TL) 2 (30 mg/l BOD_5 and 30 mg/l

TSS) and TL 3 (10 mg/l BOD_5 and 10 mg/l TSS) - and they set performance requirements for alternative systems. In addition, these regulations address the operation, maintenance, and reporting requirements for all alternative onsite systems regardless of size as required by § 32.1-164 H. This includes an inspection by a licensed alternative onsite wastewater operator at least annually with online reporting of the inspection results to VDH.

Under the Emergency Regulations, only large alternative onsite systems (AOSS) (>1000 gpd) are required to address N. 12 VAC 5-613 70.A.13 states "*Each large AOSS must comply with a total nitrogen limit of 5 mg/l as nitrogen at the project area boundary. Prior to the issuance of a construction permit, the designer shall demonstrate compliance with this requirement through modeling or other calculations. Such demonstration may incorporate multiple nitrogen removal methods such as pretreatment, vegetative uptake (only for AOSS with shallow soil treatment areas), denitrification, and other viable nitrogen management methods."*

While this is the first time that N control has been included in an onsite regulation, it has been the policy of VDH to require N management for all mass drainfields (flows ≥1200 gpd as defined in the SHDR) since the late 1980's regardless of whether they are conventional or alternative systems. That policy requires demonstration of compliance with the drinking water standard of 10 mg/l nitrate-N in the groundwater. Demonstration is through a variety of methods from treatment prior to land disposal to dilution. The Emergency Regulations make the transition to TN and provide for a safety factor of 5 mg/l TN. The Emergency Regulations do not set load goals or specify how the demonstration for compliance is made, dilution is still an option. The Emergency Regulations apply only to alternative systems and not to conventional systems.

Direct control of N from small onsite systems (<1000 gpd) is difficult. Currently there are no regulations that require N to be considered in these systems, although the Code allows VDH to promulgate N performance requirements for alternative systems only. The SHDR and the Emergency Regulations do, however, encourage the use of secondary and better treatment systems and pressure dosing by providing a smaller footprint for the drainfield and reduced standoff to restrictions. As a result of building trends and the desire to utilize sites with greater limitations, many of the systems in existence along Virginia's coast are secondary treatment systems with the drainfields installed at shallow depths with pressure dosing. All of these factors, along with the new operation and maintenance requirements, improve the potential for N uptake and/or denitrification, and for ensuring that the alternative systems are functioning properly all of which increase the potential for nutrient reduction.

Programmatic

VDH is comprised of local health departments in each county and independent city that are organized into health districts and also a central office. Local health departments issue permits and investigate complaints. As VDH begins implementation of its operation and maintenance (O&M) program, the local health department will be tasked with monitoring for compliance with these requirements and enforcement for deficient systems. The ability of each health department to accommodate these new tasks will vary. In larger health departments, the additional work may be absorbed, but in some health districts, the environmental health specialists are also called on to do restaurant inspections, respond to rabies cases, issue private well permits, and other public health interests such as H1N1.

The Central office, Office of Environmental Health Services (OEHS) and specifically, the Division of Onsite Sewage and Water Services, Engineering, and Marina Programs provide policy and technical assistance to the local health departments for onsite systems. Regulatory development is through the Central office.

Historically VDH's onsite sewage resources have been concentrated on "upfront" permitting activities. Site evaluation, system design, and installation were reviewed in detail. Once the operation permit was issued, however, VDH did not return to a site unless a failure was reported. The recent adoption of the Emergency Regulations shifts the emphasis to ongoing operation, maintenance, and reporting for alternative onsite systems. It will be a challenge for VDH to make the programmatic changes necessary to shift away from designing/reviewing to inspection/enforcement.

The Virginia Environmental Information Systems (VENIS) was brought online in 2004. That system captures all onsite permits issued in the state of Virginia. Legacy systems are being added to the database as time allows. The goal is to capture 10% of the legacy systems each year. VENIS tracks applications for construction permits and operation permits. It will also be used to track maintenance and pumpouts which will be entered in the database electronically by operators. VENIS also has the ability to track nutrient reduction technologies that are installed. As this database is completed, it will enable VDH to provide more accurate information on the number and types of systems installed in the Chesapeake Bay watershed.

Funding

The onsite program is funded through a combination of state general funds, application fee revenue, and local matching funds. No federal funds are involved.

VDH does not administer any funding options for constructing onsite systems. The civil penalties collected pursuant to § 32.1-248.3 may be used for training, educating, supporting and recognizing both private and public sectors in Environmental Health. The funds may also be used to fund research. These funds may not be used for construction.

Other agencies such as DEQ and DCR have funds available at times that may be used for onsite systems, but they are primarily for municipal systems and not individual owners. The State Revolving Fund may be used to provide loans for municipal (publicly owned) large onsite systems, and may be loaned to individuals only by qualified local entities. DCR occasionally has Water Quality Improvement Grant Funding, but it has only recently been opened to onsite systems. In these programs, direct funding to individual home owners has been rare.

Legislation approved in 2009 (§ 32.1-164.1:2) established an eligibility program for betterment loans to repair or replace failing onsite sewage systems.

"A. The Board shall establish a betterment loan eligibility program to assist owners with the repair, replacement, or upgrade of failing or noncompliant onsite sewage systems, and the Board may identify sources for betterment loans to be provided by private lenders, directly or through conduit lenders. In addition, owners may also apply to the Department for betterment loan eligibility to upgrade an onsite or alternative discharging sewage system that is not failing,

provided such upgrade is for the purposes of reducing threats to public health, and ground and surface waters, including the reduction of nitrogen discharges"

The Emergency Regulations for Alternative Onsite Sewage Systems (12 VAC 5-613-70.A.18) has wording that supports the concept of betterment loans. "*For purposes of assisting owners in obtaining such funds as may be available for reducing nitrogen discharges from AOSS, including Betterment Loans and grants from the Water Quality Improvement Fund, the department shall evaluate AOSS designs and establish the nitrogen-reducing capacities thereof."* It is likely that the NSF 245 standard will be used for identifying single family home systems that reduce N.

To date, no financial institutions are offering betterment loans.

Staffing

In the Central Office, the Division of Onsite Sewage and Water Services, Engineering, and Marina Programs, VDH has 15 staff divided between managers, environmental specialists, engineers, soil scientists, and lawyers. In the local health departments, there are approximately 300 individuals with responsibilities in the onsite sewage program. This includes environmental health managers, supervisors, and specialists.

The local health departments do not always have staff that is dedicated to just onsite sewage and their job duties include other environmental health issues such as wells, rabies, restaurant inspections, and lead programs. The staff overall are well trained and the bulk of the onsite environmental health specialists hold a state license as an Onsite Soil Evaluator.

As discussed above, VDH staff must shift focus from initial permitting to ongoing operation, maintenance, and enforcement. VDH environmental health specialists are well trained in soil and site evaluation, but additional training will be needed to accomplish the new goals, related to operation, maintenance, and compliance of onsite systems.

Technical Capacity

The technology for controlling N in large onsite systems will mimic the technology for discharging systems, but with the added safety factor of applying to the soil environment. The advantage of an onsite system is that there typically is not the need to remove N or P to the level of technology, currently 3 mg/l total nitrogen (TN) and 0.3 mg/l for total phosphorus (TP), as the system can rely on the soil and plant uptake to remove some of the nutrients. This reduces the need for chemical addition, especially of methanol which has a number of safety considerations associated with it. It also simplifies the operation and maintenance of the sewage treatment works all of which results in onsite systems being a cost effective way to address nutrient removal.

Single family home systems suffer from wide swings in flows and strength of wastewater so that it is difficult to get reliable treatment from any single family home unit. The efficiency of any nutrient removal technology is affected by these swings which are more pronounced in single family homes. The National Sanitation Foundation (NSF) 245 standard provides a process for demonstrating a 50% reduction of N through a treatment system prior to dispersal to the soil. A 50% reduction is about the limit of technology for commercially available single family home

treatment units. This treatment standard is recognized by the Chesapeake Bay model as a Best Management Practice (BMP) resulting in a 50% reduction in N to the Bay from onsite systems.

There are three existing BMPs recognized in the Chesapeake Bay Model for onsite systems: denitrification systems (like the NSF 245 rated systems discussed above), pumpouts of septic tanks, and connecting an onsite system to a central sewer ("hookups"). Of these, pumpouts are currently only tracked for those systems located in the localities affected by the Chesapeake Bay Preservation Act. The new Emergency Regulations require reporting of pumpouts for all alternative systems. That reporting will be conducted electronically. The Emergency Regulations do not address pumpouts of conventional systems. The other two BMPs, hookups and denitrification systems, are not currently tracked by VDH although tracking of installed technology, such as denitrifying treatment units, could be added to the VENIS database.

For the Chesapeake Bay Preservation areas, pumpouts or inspections are required every 5 years for all onsite systems. That has produced an average of 46,000 pumpouts of septic tanks per year. For areas outside the Preservation areas, VDH estimates that an additional 30,400 systems are pumped based on a pumpout frequency of once every 15 years. That results in an average number of septic tank pumpouts of 76,400. While VDH does not track hookups, it is estimated that approximately 975 systems come offline annually.

VDH received the authority to establish a uniform schedule of civil penalties for violations of the regulations. The ability to enforce the new operation and maintenance (O&M) requirements will greatly improve VDH's ability to obtain compliance of onsite systems. Reporting of the O&M requirements are required to be submitted electronically directly into the VENIS database. As a result VDH will have the ability to immediately assess which systems are complying with the inspection and reporting requirements.

7.2. Accounting for Growth

VDH estimates that, on average, about 11,250 onsite systems are installed in the Chesapeake Bay watershed each year. That number is expected to remain steady. Approximately 10% of new applications are alternative systems for which VDH currently has authority to regulate N. An unknown factor is how the presence of a nutrient cap for discharging systems in the Bay watershed will affect the number of onsite applications. VDH is beginning to see an increase in the number of applications for larger onsite systems in the Chesapeake Bay Watershed, but it is difficult to determine if this is a long term trend.

Large onsite systems (>1000 gpd), however, are required to demonstrate compliance with a 5 mg/l TN standard at the project boundary. N can be better managed in large systems and it is anticipated that any load of N from large onsite systems would be negligible as a result. For small systems, use of N reducing strategies is encouraged through the design incentives in the existing regulations. Operation, maintenance, monitoring, and reporting requirements for all alternative onsite systems will ensure proper function and performance.

New systems are tracked through VENIS so the number of new systems, the type of systems and the accompanying nutrient load can be estimated from VENIS. It is predicted that through better

tracking of the type of technologies, the true N reduction from shallow placed dispersal fields, NSF 245 systems, or other BMPs can be captured and reported.

While the N load from large alternative systems can be managed to result in essentially a net zero discharge to the environment, the N load from small systems serving single family homes cannot. Even if nitrogen- reducing technology were mandated for all new small alternative systems, there will still be a net N gain to the environment. Given that the bulk of small systems are conventional systems, a requirement for N reduction on alternative systems will only account for about 10% of the new systems. Currently there is no technology that can be applied to small onsite systems to reduce N to neglible amounts. As a result, the N load from the onsite sector will continue to increase with growth unless the N load is offset, either from another sector or by replacing existing onsite sewage systems with nitrogen-reducing technologies.

7.3. Gap Analysis

VDH has the statutory authority to regulate N from alternative onsite sewage systems which represents about 10% of the new systems being installed in the Chesapeake Bay Watershed. Currently, there is no regulatory requirement to control N in small (<1000 gpd) conventional onsite systems, only for the large alternative onsite systems. VDH has proposed replacement regulations for the Emergency Regulations that will mandate N reduction for all alternative systems in the Chesapeake Bay watershed. The proposed regulations for alternative onsite systems call for small systems to meet a 50% reduction in N and all large systems to meet a <3 mg/l TN at the project boundary. That will reduce N from a small percentage of the total number of systems, but the overall N load from onsite will continue to increase due to the number of conventional systems being installed.

The current regulations encourage designs that, by their nature, tend to remove N. By utilizing available dispersal technologies that allow for shallow placed systems and dosing, the opportunity for uptake/denitrification of N in the upper soil is increased. The wastewater is maintained in the upper soil horizon in the root zone for longer periods of time where there is more carbon available for denitrification and uptake by vegetation is more likely. Research indicates that 50% of N can be lost just by shallow placement and pressure dosing. Ten percent of new systems installed each year and about 15 to 20% of repairs to failing systems are of a design that they are considered N reducing. That results in a target of 10,238 N reducing systems in by 2017 which slows the increase in N from the onsite sector.

Three new BMPs for onsite will be proposed utilizing the above concept. The first BMP will allow for a 25% reduction in N with shallow placed dispersal systems utilizing gravity flow. The second BMP will allow for 50% removal of N with secondary treated effluent to a shallow placed, pressure dosed dispersal system. The third BMP will couple a denitrification system (rated at 50% N removal) and a shallow placed, pressure dosed dispersal system for a 75% N removal rating.

The existing Emergency Regulations for alternative systems require that all large systems (>1000 gpd) are required to demonstrate compliance with a TN of 5 mg/l at the project boundary so it is anticipated that the TN load from large onsite systems will be negligible. There are sufficient treatment and dispersal technologies that are well documented to accomplish this goal. Control

of N in large onsite systems has been a policy of VDH for at least 10 years, but older systems often met the concentration requirement through dilution area. Elimination of the use of dilution to demonstrate compliance is proposed in the replacement regulations, but is currently allowed.

The biggest shortfall will occur from the existing and new conventional systems. VDH has no statutory authority to regulate N from these systems so the load from that subsector will continue to increase.

7.4. Strategy to Fill Gaps

Implement Current Proposals that Utilize Existing Regulatory Authority

The Emergency Regulations for Alternative Onsite Sewage Systems are effective for only one year and replacement regulations have been proposed. VDH is utilizing the Administrative Process Act to take comments and make revisions to those regulations so that the final regulations will be ready as the Emergency Regulations expire. The replacement regulation will go to public comment on December 6, 2010, with a projected adoption of spring 2011. N limits for small alternative onsite systems (50% reduction in N as demonstrated by 4.5 lb N/person/year at the edge of the project boundary), primarily single family home systems, are proposed, as is eliminating the dilution option for demonstration of compliance for large systems. The large alternative systems in the Bay watershed will be held to the more stringent <3 mg/l TN at the project boundary. More stringent design standards are proposed for alternative systems placed in certain sensitive areas. Limiting the use of conventional systems or mandating N reduction for conventional systems would be outside the scope of these regulations and VDH's authority.

There are a number of designs that are already being used by VDH that do promote N removal. VDH will propose these as new BMPs for onsite so that the N reducing potential of these designs is recognized and reported. As the VENIS database is updated, Virginia will have a more accurate accounting of these systems and a truer picture of the input of onsite systems to the Chesapeake Bay nutrient issues.

VDH applied for and received a grant to fund a staff position that will be dedicated to coordinating VDH's activities with regard to the Chesapeake Bay TMDL. This position will work with the local health departments to complete the inventory of systems; serve as a liaison between VDH and the database developers to modify VENIS so that BMPs can be appropriately captured; promote voluntary BMP implementation; seek sources of funding for upgrades; and coordinate with local governments.

Additional Options that would include Code of Virginia changes and interagency cooperation

In order for VDH to control N from all onsite systems in the Bay watershed, including conventional systems, at least two changes would be needed to the Code of Virginia. The first would be to allow the Board of Health to set N limits in the Bay Watershed for conventional onsite sewage systems. This could be done by basing an N reduction requirement on a sensitive area designation such as distance to surface waters. Another alternative would be to mandate shallow placement of the dispersal field for conventional systems in order to achieve a 25% reduction in N. If a shallow-placed system was not feasible due to site constraints, the Board could mandate that a denitrifying treatment unit be installed. However, as noted above,

controlling nitrogen from newly installed onsite systems will slow the growth of the onsite sector's N contribution, but is not sufficient to achieve a reduction in the overall N contribution from the onsite sewage sector.

N is more easily controlled in community systems and a mechanism to encourage or require community systems would result in additional reductions of N to the Bay.

The replacement of existing conventional systems plus the implementation of new N reducing onsite requirements would be encouraged through the use of tax incentives; betterment loans; and grants or other low interest funding sources. Access to the Nutrient Credit Exchange Program to allow offsets to be procured for septic loads from other sectors would provide local flexibility to use the most cost effective nutrient reduction method. Expansion of the septic tank pumpout requirement from the Chesapeake Bay Preservation Act area to the entire Chesapeake Bay watershed would achieve additional reductions.

In summary, this plan proposes the following for the Onsite/Septic Sector:

- Implement amendments to Virginia Department of Health regulations for alternative systems. The proposed amendments require a minimum 50% reduction in delivered N for all new small alternative onsite systems in the Chesapeake Bay watershed resulting in an effective delivered load to the edge of the project boundary of 4.5 lbs TN/person/year. All large alternative onsite systems will demonstrate compliance with <3 mg/l TN at the project boundary.
- As a component of the revisions to the Nutrient Credit Exchange law proposed in 2012, allow for increased loads from onsite/septic to be aggregated at a jurisdictional level and available for offsets
- Seek revisions to the Code of Virginia will be considered to require all new and replacement systems in the Chesapeake Bay watershed to utilize either (1) "shallow-placed" systems capable of reducing nitrogen loss or (2) denitrification technology to reduce nitrogen loss and consider requirements for additional nitrogen reducing technologies in certain defined sensitive areas.
- Seek revisions to the Code of Virginia that will promote the use of community onsite systems which provide a greater reduction of TN
- Seek legislative changes necessary to establish 5 year pumpout requirements for septic tanks in jurisdictions within Virginia's Chesapeake Bay watershed (this mirrors the existing requirement for septic tanks within Chesapeake Bay Preservation Act areas)
- Seek legislative changes necessary to establish tax credits for upgrade/replacement of existing conventional systems with nitrogen reducing systems
- Encourage the use of currently authorized "Betterment Loans" for repairs to existing systems and explore other financial incentives or relief to encourage the upgrade of existing systems especially for low and moderate income households.

7.5. Contingencies

The proposed replacement regulation for alternative onsite sewage systems will slow the growth of this sector. In order to provide flexibility to localities and to recognize the regulatory limits of

the VDH programs, an expansion on the nutrient credit exchange to offset growth in the onsite sector is proposed.

7.6. Tracking and Reporting Protocols

As discussed, VENIS (Virginia Environmental Information System) is a statewide database that captures all new applications for permits. VDH has an internal goal of capturing 10% of the legacy systems per year. Once complete, VDH will have an inventory of all systems with basic site and system descriptions. BMPs could be tracked through this system. The new grant funded staff position discussed in section 8.4 will be key in accomplishing these goals.

An online reporting system is available for operation and maintenance reports, sampling, and pump outs so these tasks will be captured for the alternative systems. Currently conventional systems are not included in the O&M requirement so there is no tracking of maintenance activities for those systems.

Hookups of onsite systems to a central, discharging system, are not tracked. An option for this is to have the utilities notify an agency (VDH or DCR) when an onsite system is taken offline.

DCR currently tracks the septic pump-out practices through the cost share program. DCR also reports on the pump-out progress for all Bay Act localities. All data is submitted to NEIEN by DCR at this time, though greater coordination is needed with VDH to capture additional BMPs not currently tracked by DCR. Another improvement might include the collection of pump-out data directly from the septic haulers.